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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/706,366

11/12/2003

Hideaki Tsuda

1508.68727

6792

7590

01/25/2005

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EXAMINER

NGUYEN, THANH NHAN P

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/706,366	TSUDA, HIDEAKI	
	Examiner	Art Unit	
	(Nancy) Thanh-Nhan P Nguyen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/12/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al U.S. Patent No. 6,621,550 in view of Yamada et al U.S. Reissued Patent No. RE38,288.

Referring to claims 1, Arakawa et al discloses a liquid crystal display panel, wherein the liquid crystal shows a nematic phase at an ordinary temperature and a dielectric anisotropy of the liquid crystal is negative, [see col. 2, lines 15-19].

Arakawa et al lacks disclosure of a liquid crystal display panel in which a liquid crystal into which an alignment control agent is added is filled between a pair of substrates and an alignment regulate layer is formed on liquid crystal side surfaces of the pair of substrates respectively.

Yamada et al discloses a liquid crystal display panel in which a liquid crystal into which an alignment control agent is added is filled between a pair of substrates and an alignment regulate layer is formed on liquid crystal side surfaces of the pair of substrates respectively, [see fig. 1; col. 9, lines 13-15, 41-62], for the benefit of improving viewing angle characteristics and display quality, [see col. 6, lines 7-9].

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have an alignment control agent added to liquid crystal material between a pair of substrates and an alignment regulate layer is formed on the surfaces of the pair of substrates respectively for the benefit of improving viewing angle characteristics and display quality.

Referring to claim 2, Arakawa et al discloses a nematic liquid crystal composition having a value of dielectric anisotropy within the range of -2 to -10, [col. 2, lines 15-19]. It has been judicially determined that overlapping ranges are at least obvious. The range of the dielectric anisotropy of the liquid crystal is < -3 would have been obvious to one of ordinary skill in the art. Further, when the dielectric anisotropy is increased in the negative direction, driving at a voltage of as low as 5V or less becomes possible, [see col. 8, lines 3-6].

Claims 4, and 6 are met the discussion regarding claim 1 rejection above.

Claim 5 is met the discussion regarding claim 3 rejection above.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Yamada et al as discussed above, and further in view of Nam et al U.S. Patent Application Publication No. 2002/0039160.

Referring to claim 3, Arakawa et al lacks disclosure of acrylate monomer is used as the alignment control agent.

Nam et al discloses acrylate monomer is used as the alignment control agent for the benefit of increasing the cross linking index of the alignment film, [see par. 0048, and 0050]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use acrylate monomer as the alignment control agent for the benefit of increasing the cross linking index of the alignment film.

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Yamada et al, and Nam et al as discussed above, and further in view of Shibahara U.S. Patent Application Publication No. 2002/0008836.

Referring to claims 7, and 10, Arakawa et al lacks disclosure of the column-like spacers for maintaining an interval between the pair of substrates constant are arranged in areas between subpixels; wherein the column-like spacers are formed at a rate of one spacer to plural pixels.

Shibahara discloses the column-like spacers for maintaining an interval between the pair of substrates constant are arranged in areas between subpixels; wherein the column-like spacers are formed at a rate of one spacer to plural pixels, [see figs. 1 and 4], for the benefit of having the spacing between the spacers widened; causing the substrates to flex so as to track a dimensional change in the gap that accompanies a temperature change in the liquid crystal between the substrates, [see par. 0032]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have column-like spacers formed at a rate of one spacer to plural pixels for the benefit of having the spacing between the spacers widened; causing

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the substrates to flex so as to track a dimensional change in the gap that accompanies a temperature change in the liquid crystal between the substrates.

Referring to claim 8, it was well known to form the column-like spacers by exposing and developing a photoresist for the benefit of being a conventional method: safe and easy to use. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to form the column-like spacers by exposing and developing a photoresist for the of being safe and easy to use.

Claim 9 is met the discussion regarding claims 1 and 7 rejection above.

Claim 11 is met the discussion regarding claims 7 and 8 rejection above.

Claim 12 is are met the discussion regarding claims 3 and 7 rejection above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Arakawa et al U.S. Patent No. 6,621,550 discloses a nematic liquid crystal composition having a value of dielectric anisotropy within the range of -2 to -10 .

Yamada et al U.S. Reissued Patent No. RE38,288 discloses an alignment control agent added to liquid crystal material between a pair of substrates and an alignment regulate layer is formed on the surfaces of the pair of substrates respectively.

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Nam et al U.S. Patent Application Publication No. 2002/0039160 discloses acrylate monomer is used as the alignment control agent.

Shibahara U.S. Patent Application Publication No. 2002/0008836 discloses the spacing between the spacers being widened.

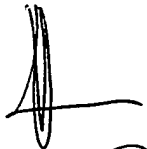
Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on M-F/9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 21, 2005

TN


Kenneth Park
Primary Examiner
GAR/2005